Meade® 7" LX200GPS Maksutov-Cassegrain Telescope

The optical perfection of a large-aperture Maksutov, combined with the electronic elegance of an LX200GPS.

The Maksutov-Cassegrain optical design has long been favored by lunar, planetary, and deep-space observers for the richly detailed, high-resolution images that it presents. And, in the Meade 7" LX200GPS the design has perhaps achieved the embodiment of its fullest potential. No other telescope offers this combination of state-of-the-art features:

Exquisite f/15 Maksutov-Cassegrain Optical System: Hand-figured by master opticians, the optics of the 7" LX200GPS easily pass, under favorable seeing conditions, all of the test criteria for optics of their aperture. The double-sided spherical meniscus correcting lens is manufactured of Grade-A crown BK7 optical glass and is free of the striations and imperfections that could otherwise degrade optical performance.

The LX200GPS control panel permits the widest range of telescope applications yet made available in a commercial instrument.

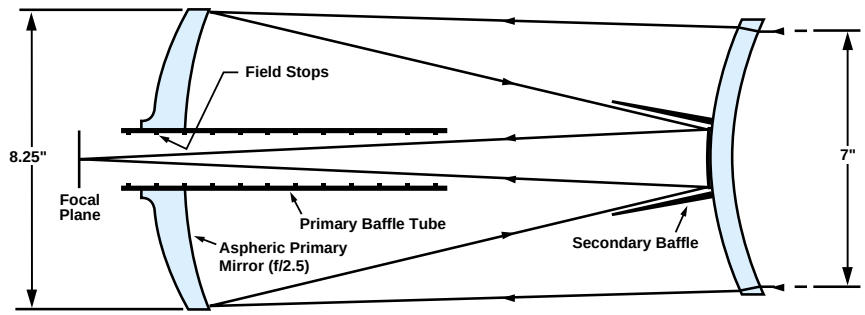
Virtually alone among large-aperture commercial Maksutov telescopes, the 7" LX200GPS includes an oversize, 8.25"-diameter primary mirror that results in a significantly wider fully illuminated field of view than would otherwise be possible. The result is that stars of equal magnitude appear of equal brightness throughout the field, from center to edge.

Perhaps even more importantly, the *aspheric* figure of the 7" LX200GPS's fast f/2.5 primary mirror yields field corrections of a level rarely observed in commercial Maksutov-Cassegrains of this aperture. Meade 7" LX200GPS owners often exclaim about the sharpness of stellar diffraction images, a sharpness owed to the optical corrections enabled by the telescope's aspheric primary mirror.

Field Stops and Baffle Systems: Essential to the performance of the 7" LX200GPS, the telescope's series of internal light baffles and field stops greatly inhibits the passage of unwanted, off-axis light rays to the prime focus. A conical baffle attached to the correcting lens in combination with the cylindrical baffle tube projecting from the primary mirror serve to reject virtually all of these rays. In addition a series of field stops, common to the primary baffle tubes of all Meade Cassegrain telescopes, effectively eliminates undesirable light which might reflect from the inside surface of the baffle tube. The result of these baffle systems is extremely high-contrast images observed against an unusually dark sky-background.

Plus the full complement of LX200GPS features *(see also pp. 32 - 36),* including **Automatic GO TO Capability** to a precision of one arc-minute; a dual-axis **Smart Drive**™ that routinely achieves a tracking periodic error of 5 arc-seconds or better, an observatory standard; **Dual-Axis Control Systems** with almost 200 drive speeds that cover every possible contingency of telescope positioning — from 0.5x photo-guiding, to 64x image centering, to 8°/sec. slewing across the sky; a 4-speed **Zero Image-Shift Microfocuser**; and an **Onboard Database of over 145,000 objects** that you can center in the telescopic field just by entering and pressing GO TO on the hand controller.

The Meade 7" (178mm) Maksutov-Cassegrain Optical System



The Meade 7" Maksutov-Cassegrain design optimizes imaging performance by combining a two-sided spherical meniscus lens *(right),* a strongly *aspheric* f/2.5 primary mirror, and a spherical secondary mirror. The convex secondary mirror multiplies the effective focal length of the primary by a factor of six, resulting in an overall f/15 system at the Cassegrain focus. The oversize 8.25" primary mirror results in a fully-illuminated (unvignetted) field of view significantly wider than can be obtained with Maksutov optics incorporating primary mirrors of the same apertures as their meniscus correcting lenses. Computer-optimized primary and secondary mirror baffles, as well as a sequence of field stops internal to the primary mirror baffle, yield lunar, planetary, stellar, and deep-space images of uncommonly high contrast and resolution.

"For over two years I have made many direct comparisons of the optical performance, contrast, and resolution of my Meade 7" LX200 with very expensive, high-performance refractors and other telescopes of reflector design. In the 7" LX200 views of Saturn and Jupiter routinely exceed in detail the images in much larger-aperture telescopes…the background sky is jet-black and the stars are pinpoint — the telescope really does give refractor-like images…when I want to do serious observations of planets and of the structure in deep-sky objects, I turn to the 7" LX200. In addition the computerized, robotic pointing accuracy of the telescope is superb, hitting any object anywhere in the sky. The mount and tripod are rock-solid and virtually eliminate vibrations to allow serious high-resolution visual observations. I can wholeheartedly recommend the Meade 7" LX200."

— Maury Childs, Fairfield, OH.

"The view through the system is superb, with pin sharp images right across the field and absolutely no trace of achromatism. Moving to higher powers reveals stellar images constrained only by the seeing and limitations of diffraction… This [7" LX200] telescope is, by any standards, a most powerful observing system. As well as the superb optics, which nowadays is a byword of this trademark, the addition of the microprocessor controller makes the whole instrument so much more user-friendly.... If you were to sit down and write a specification based on unbridled optimism and imagination, I doubt whether you would come up with all of the features available on the LX200 series. This telescope really has to be experienced." — **from the review on the Meade 7" LX200 Maksutov-Cassegrain in the November, 1996, issue of *Astronomy Now (U.K.)* by Mr. Bob Neville, Director of the Instruments and Imaging Section of the British Astronomical Association.**

Meade 7" LX200GPS
Maksutov-Cassegrain
Telescope.

Observing with the 7" LX200GPS: Most users find that observing through the 7" LX200GPS is a new experience, with lunar, planetary, and deep-space images approaching those normally obtained, at higher cost, only through a fine apochromatic refractor. Under favorable atmospheric conditions, the surface of Jupiter resolves into a treasury of extremely fine detail, with numerous of the planet's belts showing structure, color, and discontinuities, and with internal structure of the Red Spot readily visible; cloud belts on the surface of Saturn take on clear variations of color and form, with shading differences among the rings now observable; the lunar landscape becomes a field of almost unlimited detail. In deep-space galaxies, nebulae, and star clusters are seen in high contrast against a deep-black backdrop.

Specifications: 7" Model LX200GPS—Includes 7" Maksutov-Cassegrain optical tube assembly (D = 178mm, F = 2670mm f/15) with MgF_2 coatings on the correcting lens and standard aluminum coatings on the primary and secondary mirrors (Ultra-High Transmission Coatings, p. 26, available optionally); primary mirror lock; 4-speed Zero Image-Shift Microfocuser; heavy-duty fork mount, with 4"-diameter sealed polar ball bearing, quartz-microprocessor-controlled 5.75" LX worm gears on both axes, and multi-function control panel; manual and electric slow-motion controls on both axes; setting circles in RA and Dec; Autostar II control system with 3.5-Megabyte flash memory, digital readout display, permanently-programmable Smart Drive and 185-speed drive controls on both axes, High-Precision Pointing, and 145,000-object onboard celestial software library; GPS alignment system with 16-channel GPS receiver, magnetic declination compensation, and true-level and North electronic sensors; 12v DC telescope power supplied from internal battery compartments accepting 8 (user-supplied) C-cells (optional 25 ft. cords are available for powering from auto cigarette lighter plug or from 115v AC); 8 x 50mm viewfinder; eyepiece-holder and diagonal prism (1.25"); Series 4000 Super Plössl 26mm eyepiece; variable-height standard field tripod; operating instructions.